

I claim:

- 1 1. A method for reducing run out of an FDB motor during
2 servo write, comprising the steps of:
- 3 increasing the stiffness of the FDB motor's bearings
4 during servo write; and
- 5 ✓ decreasing the stiffness of the bearing after servo
6 write.
- 1 2. The method of claim 1 wherein said increasing step
2 comprises compressing the FDB motor's shaft.
- 1 3. The method of claim 2 wherein said compressing step
2 comprises applying a compressive load to said shaft.
- 1 4. The method of claim 1 wherein said increasing step
2 comprises increasing the rotational velocity of the
3 FDB motor.
- 1 5. The method of claim 1 wherein said increasing step
2 comprises significantly reducing the temperature of
3 the FDB motor during servo write so as to increase the
4 viscosity of the fluid of the FDB's motors bearings. W
- 1 6. The method of claim 2 wherein said compressing step
2 comprises applying a compressive load to the shaft by
3 a means of a clamping tool abutting each end of the
4 shaft.
- 1 7. The method of claim 2 wherein said compressing step
2 comprises an electromagnet mounted at one end of the

3 rotating elements of the FDB motor that operates when
4 actuated to reduce the gap of at least one of the FDB
5 motor bearings.

1 8. Apparatus for increasing the stiffness of an FDB motor
2 during servo write, comprising:

3 an FDB motor bearing having a stiffness; and

4 means for selectively increasing the stiffness of said
5 bearing.

1 9. Apparatus according to claim 8, wherein said means for
2 selectively increasing the stiffness of said bearing
3 comprises:

4 means for selectively providing a compressive load on
5 the shaft of said FDB motor.

1 10. Apparatus according to claim 9, wherein said means for
2 providing a compressive load on said shaft comprises:

3 means for selectively clamping each end of said shaft.

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1 11. Apparatus according to claim 8, wherein said means for
2 selectively increasing the stiffness of said bearing
3 comprises:

4 electromagnetic means mounted on the rotating elements
5 of the FDB motor for attracting said rotating

6 elements in an axial direction vis-à-vis the
7 shaft of FDB motor.

1 12. Apparatus according to claim 8, wherein said means for
2 selectively increasing the stiffness of said bearing
3 comprises:

4 electromagnetic means mounted on the rotating elements
5 of the FDB motor for attracting said rotating
6 elements in a direction that reduces the gap of
7 at least one of the FDB motor's bearings.

1 13. Apparatus according to claim 8, wherein said means for
2 selectively increasing the stiffness of said bearing
3 comprises:

4 means for selectively reducing the temperature of said
5 FDB motor to increase the viscosity of the FDB
6 motor's bearing fluid.

1 14. Apparatus for increasing the bearing stiffness of the
2 FDB motor during servo write, comprising:

3 a shaft having two ends; and

4 a releasable clamp abutting said two ends.

1 15. Apparatus according to claim 14, further including:

2 a disk drive casing;

3 at least one end of said shaft being mounted on said
4 casing; and

5 said clamp abuts said casing.

1 16. Apparatus according to claim 12, wherein said
2 electromagnetic means comprises:

3 an annular steel ring mounted on one axial end of the
4 rotating elements of said FDB motor;

5 an annular U-shaped ring mounted in a fixed
6 relationship to said rotating elements and facing
7 said annular steel ring; and

8 a current bearing coil mounted in said U-shaped ring.

1 17. Apparatus according to claim 16, wherein said U-shaped
2 ring it is mounted on the casing of a disk drive in
3 which said FDB motor is mounted.

1 18. The method according to claim 1 wherein said FDB motor
2 has at least one conical bearing and said method of
3 increasing the stiffness of said FDB motor bearings
4 includes selectively reducing the gap of said conical
5 bearing.

1 19. The apparatus according to claim 8, wherein said means
2 for selectively increasing the stiffness of said
3 bearing comprises:

4 at least one conical bearing; and

5 means for selectively reducing the gap of said conical
6 bearing.

1 20. Apparatus according to claim 14, further comprising:
2 a rotating element; and
3 a conical bearing mounted between said shaft and said
4 rotating element;
5 wherein said clamp compresses said shaft to reduce the
6 gap of said conical bearing to thereby increase
7 the stiffness of said conical bearing.

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